Lightweight Machine Gun and Ammunition: The “Clean Slate” Approach

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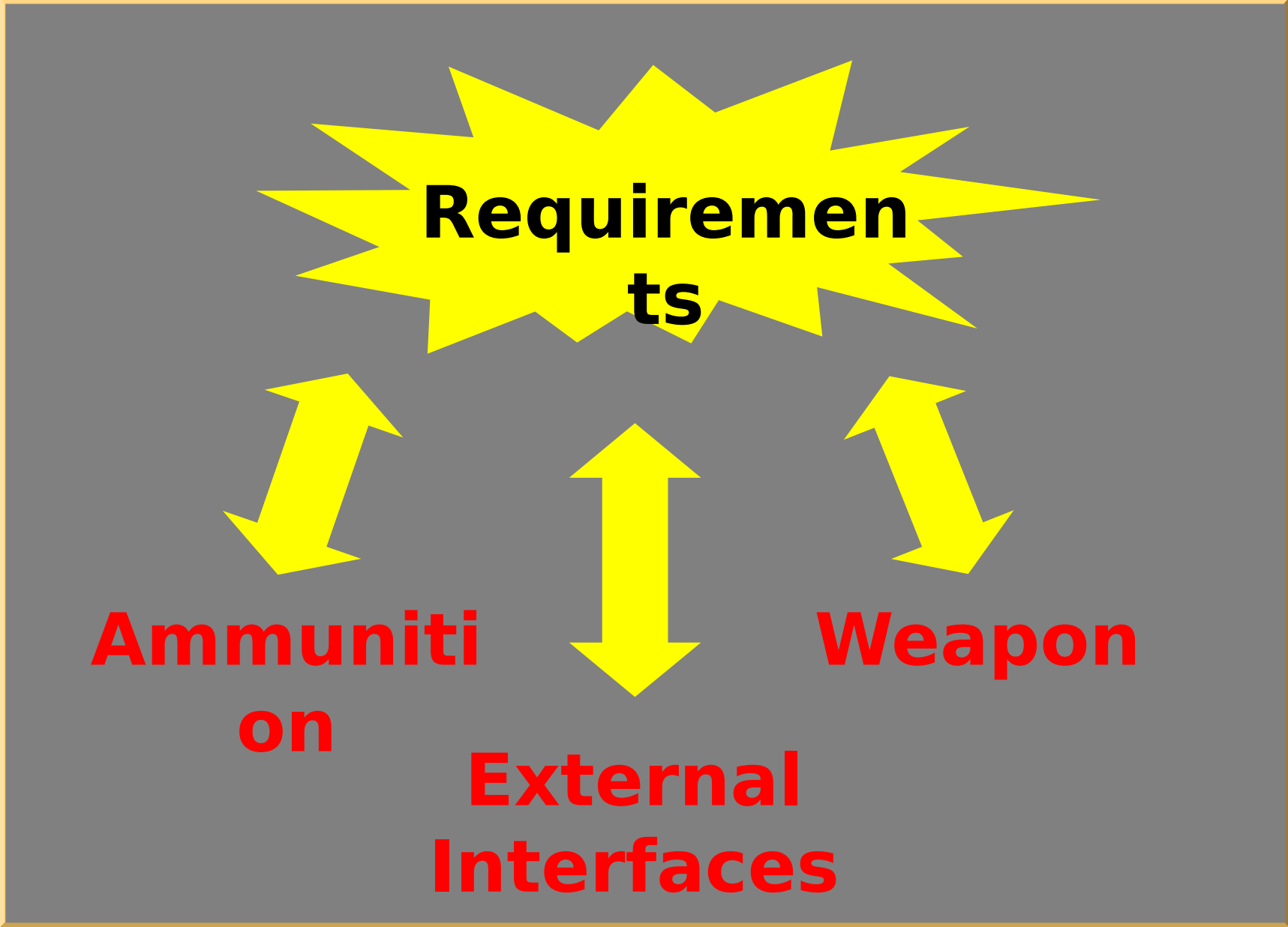
The Clean Slate
Goals

Goals:

- Reduced Weight the Priority
  - 35% Weapon Weight Reduction
  - 40% Ammo Weight Reduction
- Reduced Training Time
- Reduced Maintenance Requirements

	Light Machine Gun	
	Current	Goal
Weapon	17.5 lb	11.4 lb
Ammo (600 Rds)	20.4 lb	12.2 lb
System (Wpn +Ammo)	37.9 lb	23.6 lb


Requirements
Ammunition
External Interfaces
Weapon

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Methodology

- Research Current and Historical Efforts
  - Lightweight cartridge cases
  - Advanced Combat Rifle program
- Solicited Industry for Component Technologies
  - 28 Proposals received for weapons and ammunition
  - 5 technologies selected for contract award
  - All contributed to overall effort
- Restart Caseless Ammunition Line
  - Most promising weight reduction
  - Developed under ACR program

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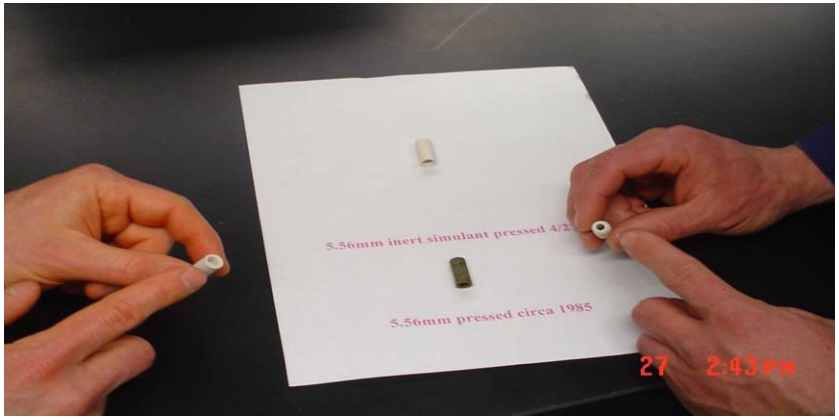
Caseless Ammunition



Clean Slate
Quality Function Deployment

"Voice of the Customer" - Integration of customer expectations into design process

- User Conference
  - Representatives from Armed Services
  - Identified critical customer requirements
- Designer Conference
  - Representatives from around the world
  - Identified set of tasks needed to meet customer requirements - "Key Design Elements"
- Combined User/Designer Conference
  - Validation of requirements and design elements
  - Formulated selection criteria for solicitation

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System Integration Contracts

- System Integration Contracts Awarded April 2004
  - AAI Corporation, Hunt Valley, MD
  - GDATP, Burlington, VT
- Phase 1 – Design Phase
  - 9 months long, virtual prototyping of weapons & ammunition
  - Downselect at end of Phase 1 (Jan 05), choose concept(s) to go forward
- Phase 2 – Develop, Fabricate & Test Phase
  - Selected MG concept(s) will be developed and fabricated
  - Subcomponents and ammunition will be tested
  - System integration planning and preliminary testing
- Phase 3 – System Integration Test Phase
  - Testing will encompass all Milestone B requirements
  - Completed at end of FY07

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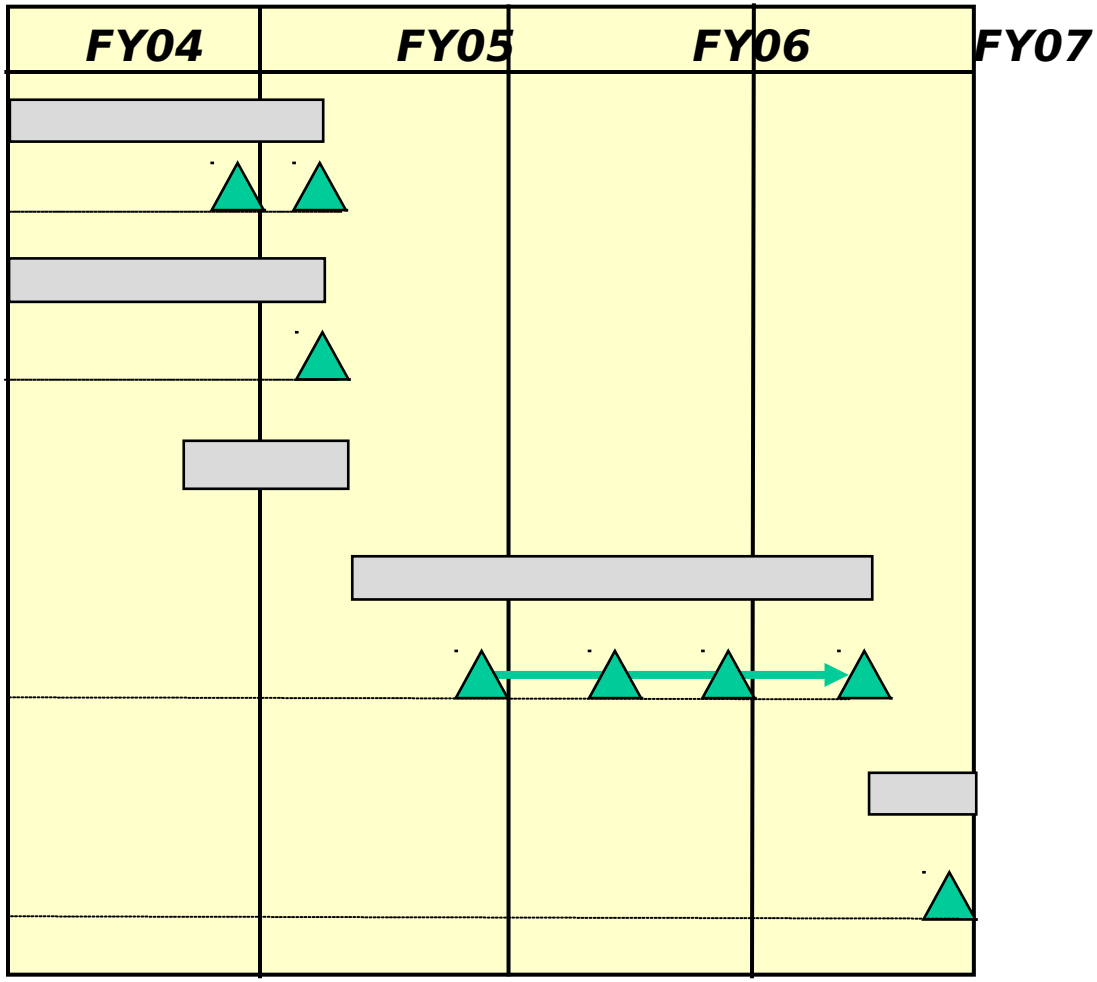
Schedule



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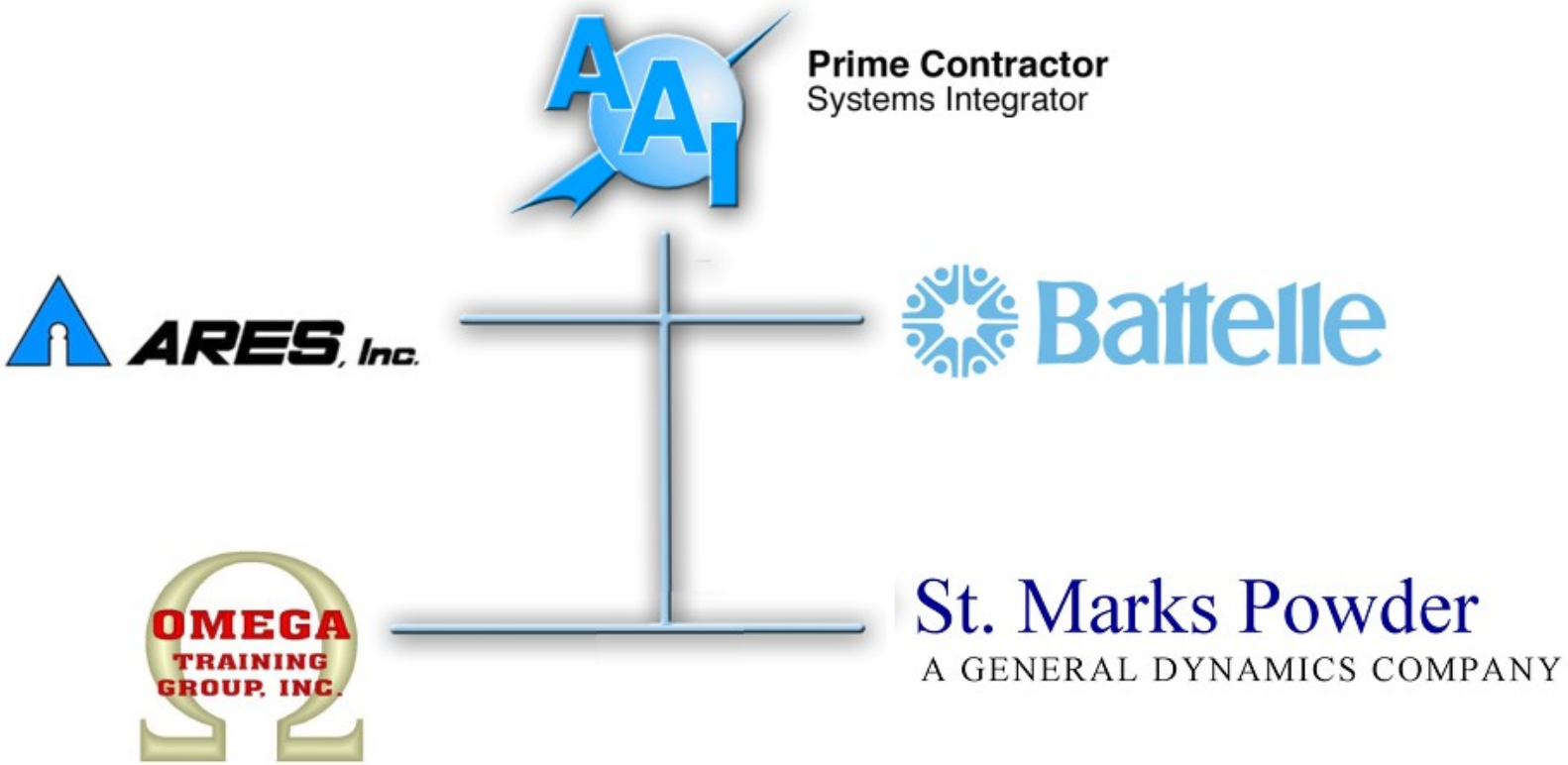
AAI Team



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The Clean Slate
GDATP Team

GENERAL DYNAMICS
Armament and Technical Products

- Lead System Integrator
- Lethality lead for system level performance
- Established system requirements and functional analysis and allocations with flow down to subsystem IPT's
- Responsible for risk management, effectiveness analysis, configuration management, interface and data management
- Lead on Technical Performance (TPM) tracking (DTUPC and DTUW)

KNIGHT'S ARMAMENT CO.

- Key member for Weapon Design and Development & IPT
- Co-design selected weapon concept
- Assist GDATP weapon TPM tracking (DTUPC and DTUW)

GENERAL DYNAMICS
Ordnance and Tactical Systems

- Lead Design and Integrator for Ammunition Design and Development
- Design lead on ammunition
- Lead on ammo TPM tracking (DTIPC and DTUW)
- Reliability and maintainability lead for ammo

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Summary

- “Clean Slate” most effective way to achieve goals
- Program is on schedule & within budget
- On track to meet or exceed User requirements
- Close partnering between Government & Industry

The Clean Slate
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